



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/706,915	11/14/2003	Tsutomu Okabe	245156US3CIP	7664
22850	7590	12/12/2006		
C. IRVIN MCCLELLAND OBLON, SPIVAK, MCCLELLAND, MAIER & NEUSTADT, P.C. 1940 DUKE STREET ALEXANDRIA, VA 22314			EXAMINER MOORE, KARLA A	
			ART UNIT 1763	PAPER NUMBER

DATE MAILED: 12/12/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

C

Office Action Summary	Application No. 10/706,915	Applicant(s) OKABE ET AL.	
	Examiner Karla Moore	Art Unit 1763	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 26 September 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-10 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-10 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 13 February 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date <u>1006, 1106</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

3. Claims 1-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent Publication No. 2002/0064439 A1 to Otaguro in view of U.S. Patent No. 6,473,996 to Tokunaga.

4. With respect to claims 1 and 4, Otaguro discloses a wafer processing apparatus in Figures 1-4, substantially as claimed and including a clean environment portion having a chamber (200; paragraph 30); therein and used for transferring a wafer between a clean box having a lid and housing the wafer and the chamber, the apparatus comprising: a first opening portion (22) through which the interior and the exterior of the chamber communicate and facing an opening of a clean box (10) so as to allow loading and unloading the wafer between the clean box and the

Art Unit: 1763

mini-environment portion; and a door (23) that closes, when the transfer of the wafer is not performed, the first opening portion and opens, when the transfer of the wafer is performed. The door has projections (uppermost and lowermost portions as seen in sectional view of Figure 1), and when the door is positioned to substantially close the first opening portion only the projection contacts with a peripheral portion of the first opening portion (also see Figure 1), the projection provides a predetermined positional relationship between the door and the first opening by contacting a peripheral portion of the first opening, when the door substantially closes the first opening. Otaguro further teaches providing communication between the higher pressure clean environment interior and a comparatively lower pressure exterior even when the door is in a closed position for the purpose of maintaining a high level of cleanliness in the clean room (paragraph 48).

5. However, Otaguro fails to teach the door specifically having projections that partially protrude from the outer shape of the door.

6. Tokunaga disclose the use of a plurality of projections provided on a sealing surface of a load port system for the purpose of maintaining a predetermined distance between sealing surfaces thereby allowing a flow of clean air from a mini-environment to the outside thereof. The projections are also provided for the purpose of allowing a closure/door to stop repeatedly at the same position with high precision (column 7, row 23 through column 8, row 31). The projections provide a predetermined positional relationship between sealing surfaces of a clean environment portion (Figure 4, 21) and a clean box/FOUP (Figure 4, 30)(also see, column 2, row 66 through column 3, row 16).

7. It would have been obvious to one of ordinary skill in the art at the time the Applicant's invention was made to have provided a plurality of projections on the door in Otaguro in order to

Art Unit: 1763

maintain a predetermined distance between sealing surfaces thereby allowing a flow of clean air from the mini-environment to the outside thereof and also to allow the door to stop repeatedly at the same position with high precision as taught by Tokunaga.

8. With respect to claims 4-6, Otaguro further fails to teach the clean environment as a mini-environment.

9. Tokunaga discloses the use of a mini-environment for the purpose of holding wafers in an enclosed space to thereby protect the wafers from dust particles in the atmosphere or from chemical contamination (column 1, rows 53-56 and column 2, rows 36-40)

10. It would have been obvious to one of ordinary skill in the art at the time the Applicant's invention was made to have provided a mini-environment in Otaguro in order to hold wafers in an enclosed space to thereby protect the wafer from dust particles in the atmosphere or from chemical contamination as taught by Tokunaga.

11. With respect to claims 2 and 5, Tokunaga fails to teach a specific arrangement of the projections. However, the reference does teach that the projections are provided on a peripheral sealing surface, of which the four corners of the door would be a part. The courts have ruled that the mere rearrangement of parts which does not modify the operation of a device is prima facie obvious. In re Japikse, 181 F.2d 1019, 86 USPQ 70 (CCPA 1950). In re Kuhle, 526 F.2d 553, 188 USPQ 7 (CCPA 1975).

12. With respect to claims 3 and 6, in Otaguro, in case that the door is positioned to substantially close the first opening portion, an aperture (52; paragraph 31) through which the interior and the exterior of the chamber are in communication with each other exists. Also, in

Tokunaga, in case that the door is positioned to substantially close the first opening portion, an aperture (column 7, rows 51-55) through which the interior and the exterior of the chamber are in communication with each other exists.

13. With respect to claim 7, Otaguro discloses a wafer processing apparatus comprising: a chamber; a first opening portion () through which the interior and the exterior of the chamber communicate; and a door that substantially closes the first opening portion. The door has projections (uppermost and lowermost portions as seen in sectional view of Figure 1), and when the door is positioned to substantially close the first opening portion only the projection contacts with a peripheral portion of the first opening portion (also see Figure 1).

14. However, Otaguro fails to teach the door specifically having projections that partially protrude from the outer shape of the door and are made into a shape so as to suppress an influence on air flow passing through a communication path from the interior to the exterior of the chamber when comparing a case that there is not projection.

15. Tokunaga disclose the use of a plurality of projections provided on a sealing surface of a load port system for the purpose of maintaining a predetermined distance between sealing surfaces thereby allowing a flow of clean air from a mini-environment to the outside thereof. The projections are also provided for the purpose of allowing a closure/door to stop repeatedly at the same position with high precision (column 7, row 23 through column 8, row 31).

16. It would have been obvious to one of ordinary skill in the art at the time the Applicant's invention was made to have provided a plurality of projections on the door in Otaguro in order to maintain a predetermined distance between sealing surfaces thereby allowing a flow of clean air

Art Unit: 1763

from the mini-environment to the outside thereof and also to allow the door to stop repeatedly at the same position with high precision as taught by Tokunaga.

17. With respect to the recitation that the projections suppress an influence on air flow passing through a communication path from the interior to the exterior of the chamber when comparing a case that there is not projection, it is noted that the courts have ruled that claims directed to apparatus must be distinguished from the prior art in terms of structure rather than function. In re Danly, 263 F.2d 844, 847, 120 USPQ 528, 531 (CCPA 1959).

18. With respect to claim 8, Otaguro further discloses a wafer processing apparatus, substantially as claimed and comprising: a chamber (200) having a wall portion with a window opening (22) through which wafers are received into the chamber or removed therefrom; and a door (23) configured to close the window opening.

19. However, Otaguro fails to teach the door specifically having projections a plurality of protrusions extending from an outermost perimeter thereof, the plurality of protrusions being shaped to reduce gas flow turbulence generated by opening and closing the door, wherein when the door is substantially close to the window opening, only the plurality of “protrusions” contact a surface of the wall portion to the window opening.

20. Tokunaga disclose the use of a plurality of projections provided on a sealing surface of a load port system for the purpose of maintaining a predetermined distance between sealing surfaces thereby allowing a flow of clean air from a mini-environment to the outside thereof. The projections are also provided for the purpose of allowing a closure/door to stop repeatedly at the same position with high precision (column 7, row 23 through column 8, row 31). The

Art Unit: 1763

projections are shaped to reduce gas flow turbulence in that their presence provides an ever-present gap for air flow from a mini-environment to outside thereof.

21. It would have been obvious to one of ordinary skill in the art at the time the Applicant's invention was made to have provided a plurality of projections on the door in Otaguro in order to maintain a predetermined distance between sealing surfaces thereby allowing a flow of clean air from the mini-environment to the outside thereof and also to allow the door to stop repeatedly at the same position with high precision as taught by Tokunaga.

22. With respect to claim 9, Tokunaga fails to teach a specific arrangement of the projections. However, the projections are taught to be provided on a peripheral sealing surface, of which the four corners of the door would be a part. The courts have ruled that the mere rearrangement of parts which does not modify the operation of a device is prima facie obvious. In re Japikse, 181 F.2d 1019, 86 USPQ 70 (CCPA 1950). In re Kuhle, 526 F.2d 553, 188 USPQ 7 (CCPA 1975).

23. With respect to claim 10, in Otaguro, in case that the door is positioned to substantially close the first opening portion, an aperture (52; paragraph 31) through which the interior and the exterior of the chamber are in communication with each other exists. Also, in Tokunaga, in case that the door is positioned to substantially close the first opening portion, an aperture (column 7, rows 51-55) through which the interior and the exterior of the chamber are in communication with each other exists.

Response to Arguments

24. Double patenting rejections are withdrawn.

25. Applicant's arguments filed 25 August 2006, with respect to the prior art have been fully considered but they are not persuasive.

26. As described in the previous office actions and the advisory action and above, Otaguro discloses a door provided at an interface where a clean box and a mini-environment/clean room meet. Otaguro discloses that the door is means for providing isolation between the clean box and the mini-environment. The door comprises projections at the outer shape of the door, which are a mechanism for providing the isolation. However, the projections are not disclosed as protruding from the outer shape of the door. Otaguro further teach that it is desirable to maintain a directional gas flow outwards from the mini-environment/clean room and towards the clean box for maintaining cleanliness (paragraph 48). Admittedly, in Otaguro, the flow of air is maintained by a gap provided elsewhere on the interface, not directly at a contact surface of the door. Tokunaga teach providing a gap using outwardly extending projections at a sealing surface of a door of a clean box and a mini-environment/clean room. The projections are provided for the purpose of maintaining a desirable air flow pattern (i.e. a directional flow like that disclosed in Otaguro, from the mini-environment/clean room and towards a clean box). In Otaguro, the door is the sealing surface. If one were to modify the apparatus of Otaguro according to the teachings of Tokunaga, where projections are provided at a sealing surface, one would provide projections at the door, or its complimentary sealing surface. It would be exceedingly obvious and clear to one of ordinary skill in the art that one could provide the projections on either of the door or the complimentary sealing surface, as the distance between the two structures needed to establish the desired gas flow pattern, would be maintained either way.

27. Examiner does not dispute that neither of the relied upon references fails to individually teach the claimed invention. Rather, Examiner finds that the combination of the teachings fairly

Art Unit: 1763

suggests the claimed invention. The courts have ruled that the test for obviousness is not whether the features of a secondary reference may be bodily incorporated into the structure of the primary reference; nor is it that the claimed invention must be expressly suggested in any one or all of the references. Rather, the test is what the combined teachings of the references would have suggested to those of ordinary skill in the art. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981).

28. In response to applicant's argument that the examiner's conclusion of obviousness is based upon improper hindsight reasoning, it must be recognized that any judgment on obviousness is in a sense necessarily a reconstruction based upon hindsight reasoning. But so long as it takes into account only knowledge which was within the level of ordinary skill at the time the claimed invention was made, and does not include knowledge gleaned only from the applicant's disclosure, such a reconstruction is proper. See *In re McLaughlin*, 443 F.2d 1392, 170 USPQ 209 (CCPA 1971).

Conclusion

29. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event,


Art Unit: 1763

however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Karla Moore whose telephone number is 571.272.1440. The examiner can normally be reached on Monday-Friday, 9:00 am-6:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Parviz Hassanzadeh can be reached on 571.272.1435. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



Karla Moore
Primary Examiner
Art Unit 1763
12 December 2006